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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/826,675 | 04/16/2004 | Daisaku Yano | 08228/036002 | 9589 |

7590

10/24/2005

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EXAMINER

HOPKINS, ROBERT A

ART UNIT

PAPER NUMBER

1724

DATE MAILED: 10/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/826,675

Applicant(s)

YANO ET AL.

Examiner

Robert A. Hopkins

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-15 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>7-16-04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,5-7 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Moriarty et al(4992380).

Moriarty et al teaches a method for controlling concentration of a water treatment chemical, comprising adding a water soluble lithium salt as a tracer along with the water treatment chemical to water to be treated(column 4 lines 29-31), electrochemically or optically measuring concentration of lithium ions using a lithium ion sensitive substance(column 23 lines 34-46, column 24 lines 1-6), and using the measured lithium ion concentration to control the concentration of water treatment chemical added to the water to be treated(column 24 lines 7-10, column 14 lines 26-31). Moriarty et al further teaches wherein the lithium ion concentration is measured by detecting a membrane potential indicated by a lithium ion electrode incorporating a sensitive membrane including the lithium ion sensitive substance(see ionophore membrane 74M in figure 16). Moriarty et al further teaches wherein the lithium ion concentration is measured by detecting change in a value of current flowing in a field effect transistor incorporating the lithium ion sensitive substance. Moriarty et al further teaches wherein lithium ion concentration is measured by detecting an optical characteristic indicated by a

membrane incorporating the lithium ion sensitive substance and a fluorescent or light absorbing substance. Moriarty et al further teaches wherein the water soluble lithium salt is added so that the lithium ion concentration in the water to be treated is within the range of 0.01-20mg/liter.

Claims 8,9,11,14,15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Moriarty et al(4992380).

Moriarty et al teaches an apparatus for controlling concentration of a water treatment chemical comprising a lithium ion sensitive substance placed in contact with water to be treated(column 4 lines 29-31, column 23 lines 41-44), a transducer(figure 17) for converting a state of the sensitive substance into an electric or optical signal, an arithmetic section for receiving the signal and calculating a concentration of the water treatment chemical(column 14 lines 21-25), and a control section for determining , based on the calculated water treatment chemical concentration, an amount of the water treatment chemical to be added to the water to be treated(column 24 lines 7-10). Moriarty et al further teaches wherein a sensitive membrane(74M) is formed including the lithium ion sensitive substance, and the sensitive membrane and the transducer constitute a lithium ion electrode(ion selective electrode). Moriarty et al further teaches wherein lithium ion concentration within the water to be treated is measured by detecting a membrane potential indicated by the sensitive membrane. Moriarty et al further teaches wherein the lithium ion concentration is measured by detecting change in a value of current flowing in a field effect transistor incorporating the lithium ion sensitive substance. Moriarty et al further teaches wherein lithium ion concentration is

measured by detecting an optical characteristic indicated by a membrane incorporating the lithium ion sensitive substance and a fluorescent or light absorbing substance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3,4,12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriarty et al(4992380) taken together with Mu et al(6508921) or Japanese reference(62-202875).

Moriarty et al teaches all of the limitations of claims 3,4,12, and 13 but is silent as to wherein the lithium ion sensitive substance is a compound denoted by the chemical formulas in claims 3 and 4. Both Mu et al(column 2 lines 23-25, lines 30-33) and Japanese reference(abstract and chemical structure C on page 636) teach wherein the lithium ion sensitive substance is a compound denoted by the chemical formulas in claims 3 and 4. It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide wherein the lithium ion sensitive substance is a compound denoted by the chemical formulas in claims 3 and 4 in order to provide for a substance with high selectivity and specificity for lithium ions, fast kinetic response, good measuring precision, and long life time(column 2 lines 23-25 of Mu et al and abstract of Japanese reference).

Allowable Subject Matter

Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 10 recites "wherein the lithium ion electrode includes a light-shielding cover which covers at least the sensitive membrane". Moriarty et al fails to teach wherein the lithium ion electrode includes a light-shielding cover which covers at least the sensitive membrane. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide wherein the lithium ion electrode includes a light-shielding cover which covers at least the sensitive membrane because Moriarty et al does not suggest such a modification.

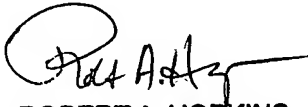
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Hopkins whose telephone number is 571-272-1159. The examiner can normally be reached on Monday-Friday, 7am-4pm, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rah
October 20, 2005


ROBERT A. HOPKINS
PRIMARY EXAMINER
A.U. 1724